



Living With Wildfire in Log Hill Mesa, Ouray County, Colorado: 2017 Data Report and a Comparison to 2011 and 2012 Data

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EXECUTIVE SUMMARY

Residents in the wildland-urban interface (WUI) play an important role in reducing the catastrophic effects of wildfire by performing risk mitigation on their properties. Decisions about wildfire risk mitigation are complex and can be influenced by many factors. In 2017, the West Region Wildfire Council (WRWC), the Log Hill Mesa Fire Protection District, and the Wildfire Research (WiRē) Team collaborated to understand the nature of wildfire risk in the community served by the Log Hill Mesa Fire Protection District. This effort replicates an approach implemented in 2011 and 2012, which collected and analyzed wildfire risk data and social data in the same community of Log Hill Mesa Fire Protection District. This report focuses on the 2017 effort, which offers data-driven insights into the wildfire risk mitigation activities and related characteristics of residents in the Log Hill Mesa Fire Protection District. In general, the 2017 results highlight an engaged community with continued potential for more wildfire risk reduction on properties. Comparison against the 2011/2012 data suggests significant inertia in the ways that community residents engage with wildfire risk over time, with slight decreases in perceived wildfire risk and select barriers to mitigation, slight increases in engagement amongst residents and with WRWC, and few other significant changes at the community level over time. We emphasize that these results may differ from the results of similar assessments and surveys in other communities.

INTRODUCTION

Over the last decade, a team of researchers and practitioners, referred to as the Wildfire Research Team (WiRē¹ Team), has worked with wildfire practitioners seeking to create communities that are adapted to wildfire through an evidenced-based approach. The West Region Wildfire Council (WRWC) has been an integral partner amongst the WiRē Team throughout this time. Together, the WiRē Team has developed a systematic data collection and integration approach (the WiRē approach) that informs local wildfire risk education efforts and allows for monitoring of community adaptation over time. Through this approach, we collect and analyze locally relevant wildfire risk and social science data to enhance the effectiveness of local wildfire risk mitigation efforts. A unique aspect of this report is that the data collection effort was replicated. The results of the 2011/2012 data collection effort are summarized in Meldrum et. al. (2013). In this report, the results of the 2017 data collection effort are summarized first, followed by a brief comparison of the 2017 results to the 2011/2012 data. This comparison is offered to provide context to the 2017 data; in-depth investigation of change over time is beyond the scope of this report.

The WiRē Approach

Currently, the core of the WiRē approach includes two central data collection efforts:

1. A property-level WiRē Rapid Wildfire Risk Assessment based on attributes related to building materials, vegetation near the home, background fuels, and topography, as well as fire department access to the property. The WiRē Rapid Wildfire Risk Assessment includes an overall risk rating for the property. It is an indicator of the relative risk of the private property within the community rather than an absolute measure of risk.
2. Social surveys of the residents of the assessed properties, which represent residents' notions of wildfire risk, risk mitigation behaviors, including evacuation planning, and barriers and incentives to mitigate wildfire risk on private properties.

The WiRē approach aims to empower the voice of wildfire practitioner partners. These partners both participate in the data collection process and share the results with their communities. WiRē team experience has demonstrated that sharing results with the community provides a common platform for constructive discussion about adapting to wildfire. During these discussions, wildfire practitioner partners can draw from data that reflects the entire community, not just the vocal few. To support these discussions and other partner goals, WiRē summarizes local data and provides wildfire practitioner partners with the tools to act on research results.

¹ Pronounced Wy-REE.

Project Area: Log Hill Mesa Fire Protection District

Log Hill Mesa Fire Protection District is approximately 65 square miles of WUI in Ouray County, Colorado (fig. 1). The district contains a significant portion of the total value at risk in unincorporated Ouray County, in terms of structure values. The Log Hill Mesa Fire Protection District, WRWC, Colorado State Forest Service, and several homeowners' associations have been working collaboratively to identify and mitigate wildfire risk in the area. Log Hill Mesa was recognized as a Firewise USA® community in 2012, and in 2014, Fisher Canyon South, a homeowners' association within Log Hill Mesa, achieved its own recognition status as well. Firewise USA® is a national voluntary program that seeks to help neighbors take action to increase the ignition resistance of their homes and communities.

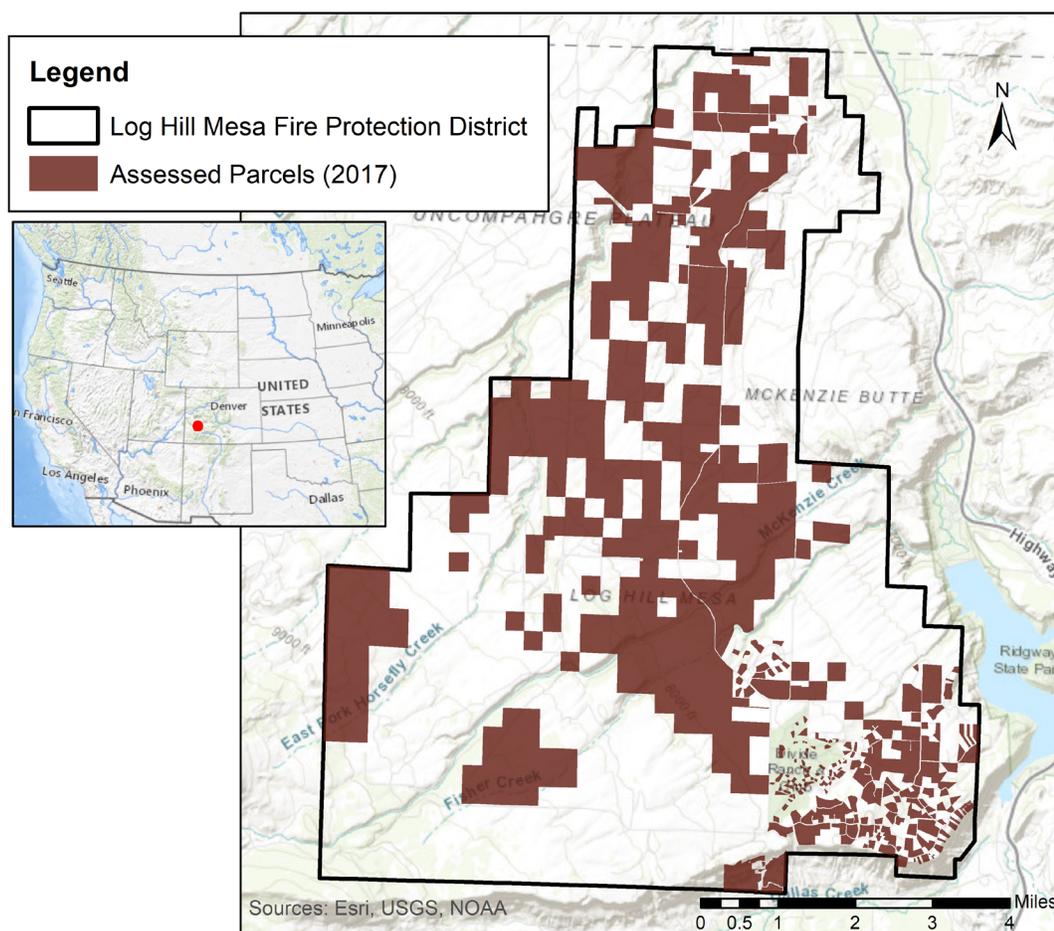


Figure 1—Map of assessed parcels in the Log Hill Mesa Fire Protection District in Ouray County in 2017. Inset shows location within Colorado. Basemap image is the intellectual property of Esri and is used herein under license. Copyright © 2020 Esri and its licensors. All rights reserved.

METHODS

WRWC promotes wildfire preparedness, mitigation, and adaptation throughout Delta, Gunnison, Hinsdale, Montrose, Ouray, and San Miguel Counties. As part of this mission, WRWC and Log Hill Mesa Fire Protection District partnered with the WiRē Team in 2011 and 2012 to implement the WiRē approach in the Log Hill Mesa community (Meldrum et al. 2013). WRWC repeated the approach in 2017, 6 years after the original rapid wildfire risk assessment and 5 years after the original household survey, to evaluate changes over time in the community in terms of (a) the assessed wildfire risk and (b) the “social landscape.” Because the survey responses are geospatially tied to the parcel-level rapid assessment, we are able to draw some unique and insightful connections between assessed wildfire risk and household survey responses. We refer to this combined understanding as the social landscape.

Rapid Wildfire Risk Assessments

WRWC conducted the parcel-level rapid wildfire risk assessment (“rapid assessment”) in 2011 and 2017. The rapid assessment tool is based on the Home Ignition Zone concept (Cohen 2000). The Bureau of Land Management and WRWC collaboratively developed the tool through multiple iterations. The rapid assessment is intended to be completed in approximately 1 minute, gathering a quick snapshot of the home and property’s wildfire risk.

In 2017, a WRWC wildfire mitigation professional, accompanied by a representative from the Log Hill Mesa Fire Protection District, assessed parcels for 11 elements that affect either a home’s wildfire vulnerability or emergency response capacities, such as firefighter access and evacuation potential. Each of the 11 elements contributed to a weighted score, which the professional used to assign each parcel an overall wildfire risk rating, which is broken into five levels of risk: low, moderate, high, very high, and extreme. This overall risk rating reflects a property’s risk relative to the overall level of risk within its community rather than an absolute risk rating. Appendix A contains a copy of the 2017 rapid assessment tool.

WRWC’s professional assessed properties primarily from public roadways. When vegetation impeded visibility from the public roadway, the professional supplemented the roadside assessment with information from the Ouray County Assessor and publicly accessible aerial and satellite imagery. When a particular element could not be observed by any method, the professional assigned the highest risk category for the element. This default could bias the professional’s assessments toward higher levels of risk in relevant categories.

All assessments reflect the state of the property at the time of assessment. Rapid assessment results and respective ratings can be updated if a resident completes mitigation actions such as creating defensible space, clearing combustible materials near the home, or installing an ignition-resistant roof or deck.

Household Survey

WRWC also conducted a household survey in 2012 and 2017 of Log Hill Mesa Fire Protection District residents whose homes had been assessed by the wildfire mitigation professionals. WRWC and the WiRē team developed the survey collaboratively. The survey contained seven sections designed to collect a variety of social information. It also asked residents to assess their property based on the 11 wildfire risk elements that the professional assessed. Appendix B provides a copy of the survey instrument along with tabulations for all responses.

Household survey data were collected using a modified Dillman (2000) approach that includes an initial letter of invitation announcing the data collection effort; a survey packet containing a cover letter, a household survey, and a postage-paid and addressed return envelope; a reminder/thank you postcard mailed to the entire mailing list; and a second survey packet with an updated cover letter, mailed only to nonrespondents.

2017 RESULTS

Who Responded to the Survey?

WRWC assessed 659 properties in the Log Hill Mesa in 2017. After removing undeliverable addresses from the list of assessed properties, WRWC mailed 633 letters inviting Log Hill Mesa Fire Protection District residents to participate in the social survey. Overall, 299 residents responded to the survey for a response rate of approximately 47%. This percentage may underestimate the true response rate, if additional letters were undeliverable but could not be tracked. Note that not all residents answered all questions. Values in figures 2 through 21 may not precisely match values in Appendix B due to (1) omission of “not applicable” responses from calculation of percentages and (2) rounding.

A majority of survey respondents report living in their residence year-round (75%). Typical residents have lived in their current residence for about 11 years (average move-in year is 2006) and expect to stay there for at least 5 more years (19% expect to move within 5 years). The average year in which residents’ homes were built was 1998.

Residents range from 27 to 99 years old, with a average age of 66 years. More than half (58%) report being retired and less than one-third (30%) are employed full-time. Fewer females (30%) responded than males. Residents have a high level of education and moderate to high annual income, with 76% reporting that they completed at least an undergraduate degree, 34% of residents indicating they had earned an advanced degree, and 59% reporting a household income of \$75,000 or more.

The target population in Log Hill Mesa is not intended to be representative of Ouray County as a whole. Nonetheless, there are no substantial differences between the survey data and the U.S. Census Bureau data for Ouray County. For example, median income is \$62,800 in the census (U.S. Census Bureau 2016) and reported as between \$75,000 and \$99,999 for survey participants.

What Do Residents Think About Wildfire?

Residents’ notions of wildfire may influence their willingness to address wildfire risk. Figure 2 depicts residents’ awareness, concern, and experience with wildfire. In general, many residents have first- or second-hand experience with wildfire and most report being aware of wildfire risk.

Figure 3 depicts measures of attitudes toward wildfire and wildfire suppression from the survey. Residents recorded responses on a scale from 1 (“strongly agree”) to 5 (“strongly disagree”); for concise display, figure 3 combines categories 1 (“strongly agree”) and 2 (“agree”) into “agree” and categories 4 (“disagree”) and 5 (“strongly disagree”) into “disagree,” with category 3 (“neutral”) not shown. Residents tend to think that wildfires are a natural part of the balance of a healthy ecosystem, but they also think that wildfires should be put out if they threaten property.

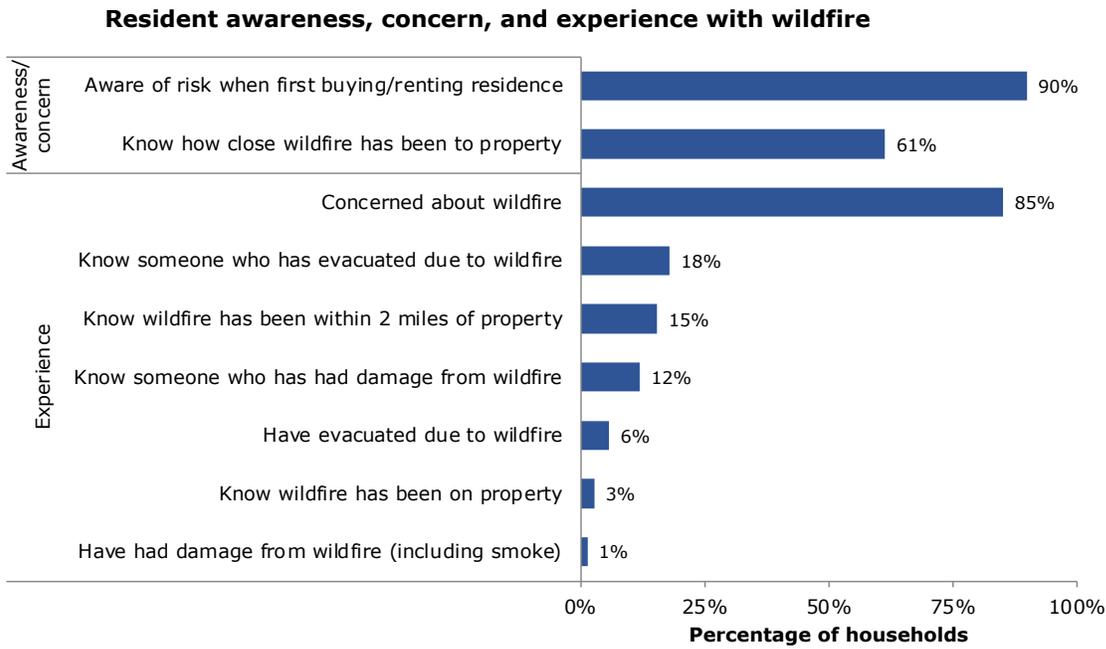


Figure 2—Resident awareness, concern, and experience with wildfire from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

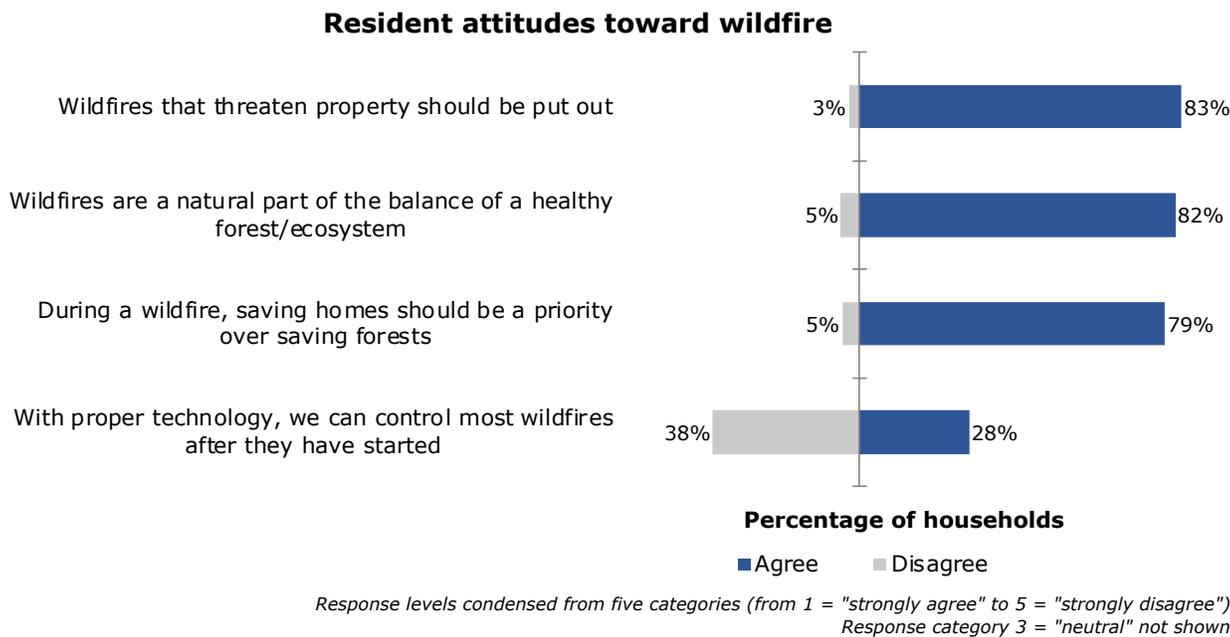


Figure 3—Resident attitudes towards wildfire and wildfire suppression from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Insurance is an issue that often comes up when considering resident perspectives on wildfire. Figure 4 depicts information residents reported about insurance and wildfire. Almost half (47%) of residents are not aware of any effect of wildfire risk on their insurance.

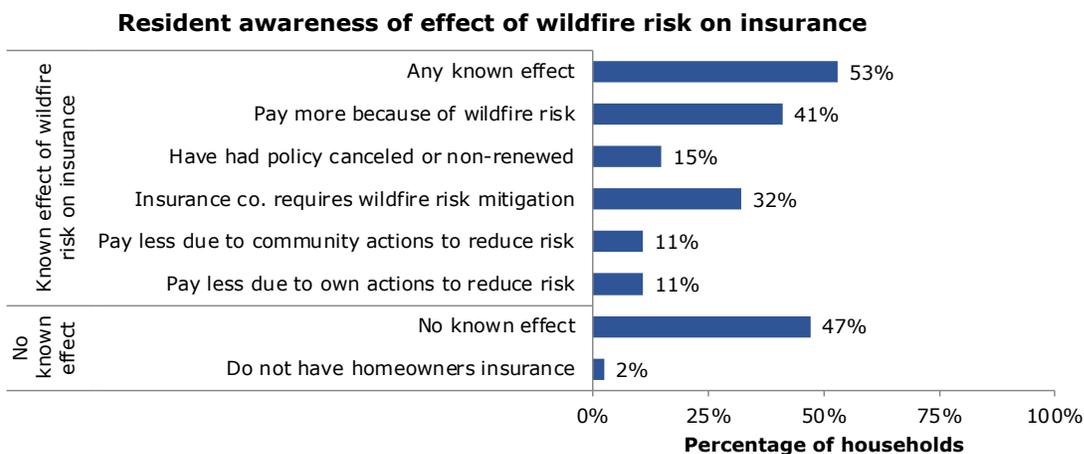


Figure 4—Resident awareness of the effect of wildfire risk on homeowners insurance from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

How Do Residents Characterize Risk?

Residents’ risk perceptions and decisions about wildfire risk mitigation are often found to be correlated (Brenkert-Smith et al. 2013; Champ and Brenkert-Smith 2016; Champ et al. 2013; McGee et al. 2009; Meldrum et al. 2019). Results covered in this section pertain to different aspects of how residents understand and think about risk. Figure 5 shows residents’ willingness to take different types of risks. Responses were recorded on a scale from 0 (“not at all willing to take risks”) to 10 (“very willing to take risks”); for concise display, figure 5 combines categories 0 through 4 into “not willing to take risks” and categories 6 through 10 into “willing to take risks,” with category 5 not shown. Risk attitudes vary across different risk domains or types of risks. Across the domains, respondents are least willing to take risks when it comes to losing their home due to wildfire and most willing to take risks related to engaging in sports.

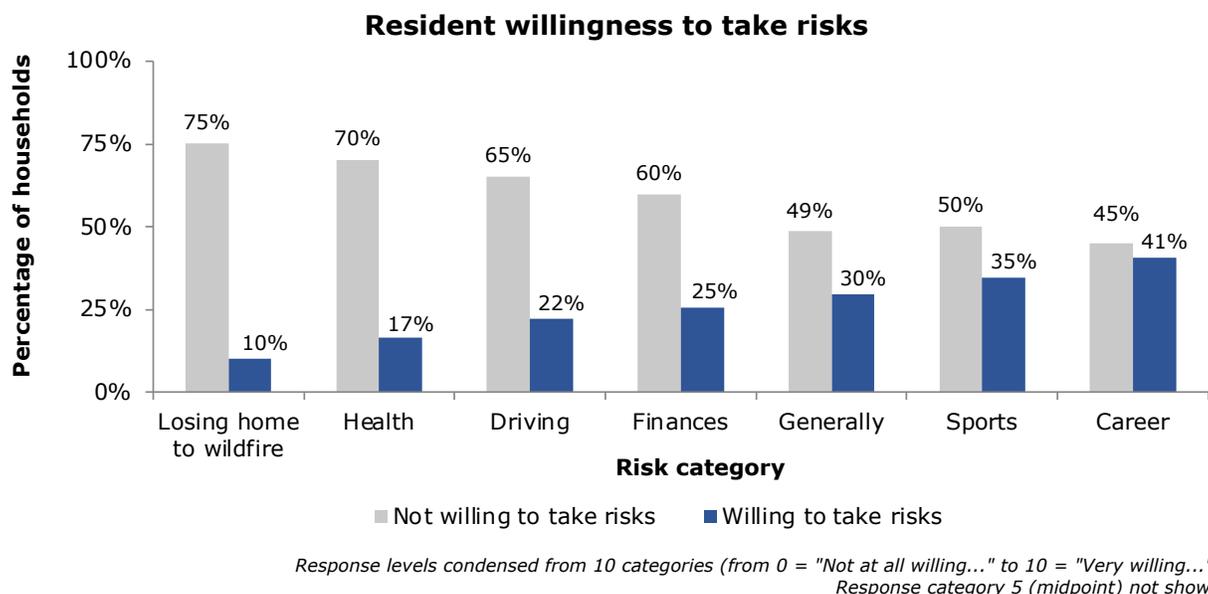


Figure 5—Resident willingness to take risks, separated into types of risk, from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Where Do Residents Get Information about Wildfire and What Are Their Expectations Related to Wildfire?

As figure 6 shows, residents report receiving information about wildfire from a variety of sources. The local fire department and WRWC are the only sources of information noted by more than half of the residents. While wildfire is a topic often covered in media, only 27% of respondents reported receiving information from media.

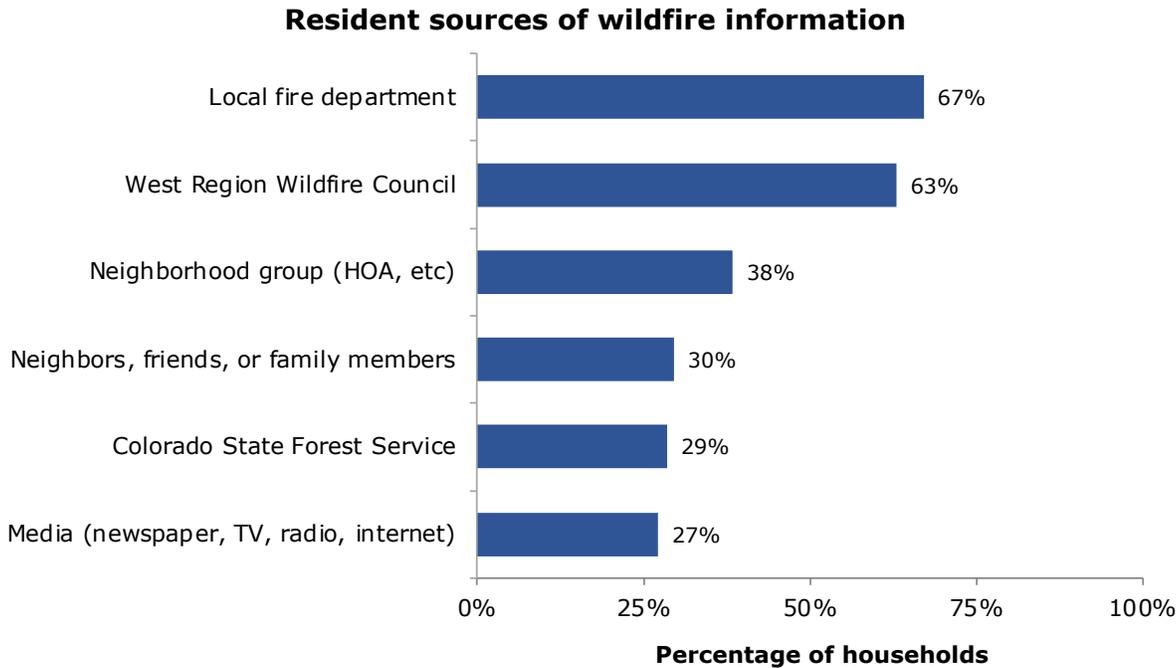
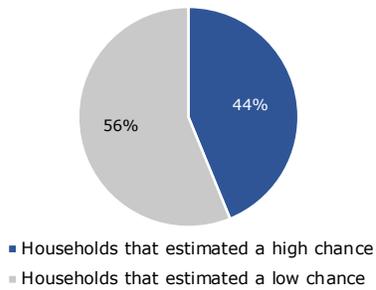


Figure 6—Resident sources of information about wildfire risk as measured in the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Figure 7 depicts residents’ perceptions of wildfire risks on their property. Residents were first asked about the chances of a fire on their property in 2017. Then they were asked about the chances their home would be destroyed conditional on a fire being on their property. Although residents generally think wildfire on their property is not a very likely event, they vary widely in their estimates of how likely it is that their home would survive if wildfire does reach their property.

Finally, figure 8 shows that residents have a variety of expectations about what will happen if a wildfire reaches their property. The most likely expectation is that trees and landscape will burn. A little over 50% of respondents expect the fire department would save their home.

Chance home destroyed if wildfire on property in 2017



Chance of wildfire on property in 2017

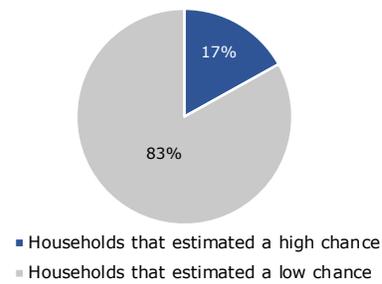
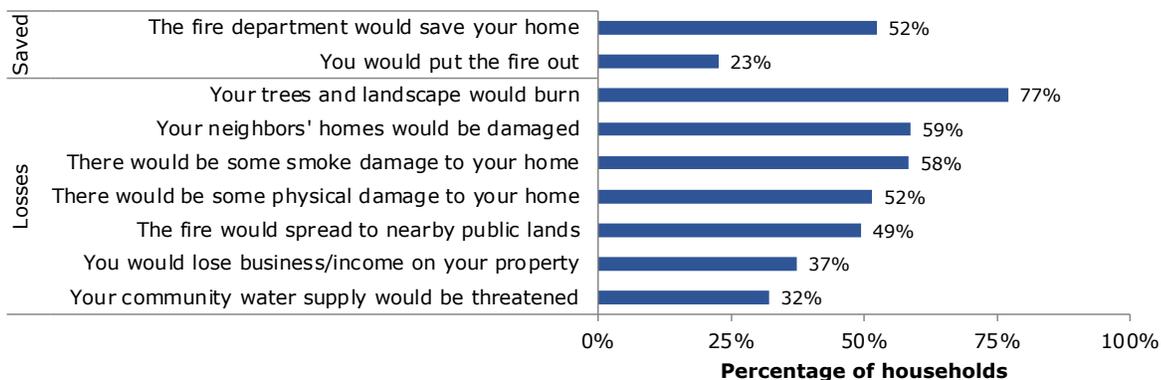


Figure 7—Resident perceptions of wildfire risk and home destruction risk in 2017, from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Resident expectations of wildfire outcomes on property



Response levels condensed from five categories (from 1 = "not likely" to 5 = "very likely") Response categories 4,5 = "likely" are shown

Figure 8—Resident expectations of outcomes of a wildfire on property from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Rapid Assessment Versus Survey Responses for Property Hazards

Figures 9–15 compare the results of the rapid assessments against survey responses for the set of 11 property risk elements, as well as for the overall risk rating based on these elements. All of the properties assessed by the professional were sent a survey, but not all the surveys were returned. Properties without survey responses are not included in the comparisons below. However, the professionally assessed risk ratings were similar for the properties that returned the surveys and the properties that did not return the surveys. Specifically, although nonrespondents were less likely than respondents to have risk rated as moderate (6% versus 13%) and more likely to have risk rated as high (61% versus 53%) by the professional, there is no significant difference in these distributions based on a Kruskal-Wallis test or a t-test of average risk scores.

Background Risk Factors

Although the rapid assessment focused primarily on property characteristics that residents can change, it is also important to consider the background risk factors that affect potential wildfire behavior and contribute to a property’s overall wildfire risk. All assessed properties are located in the Log Hill Mesa Fire Protection District—a community that has been

determined to be at risk of wildfire via the Ouray County Community Wildfire Protection Plan (Ouray County 2011) and Log Hill Mesa Community Wildfire Protection Plan (Log Hill Mesa 2012). When a fire reaches a property, background risk factors can influence the fire’s behavior in immediate proximity to residential structures. These factors include the distance to dangerous topographic features (ridges, chimneys, and canyons), the predominant types, density and continuity of background fuel (vegetation) in the general vicinity of the property, and the overall slope of the property. As shown in figure 9, many residents overestimate nearby vegetation density compared to the professionals, but they are also more likely to report a lower overall property slope.

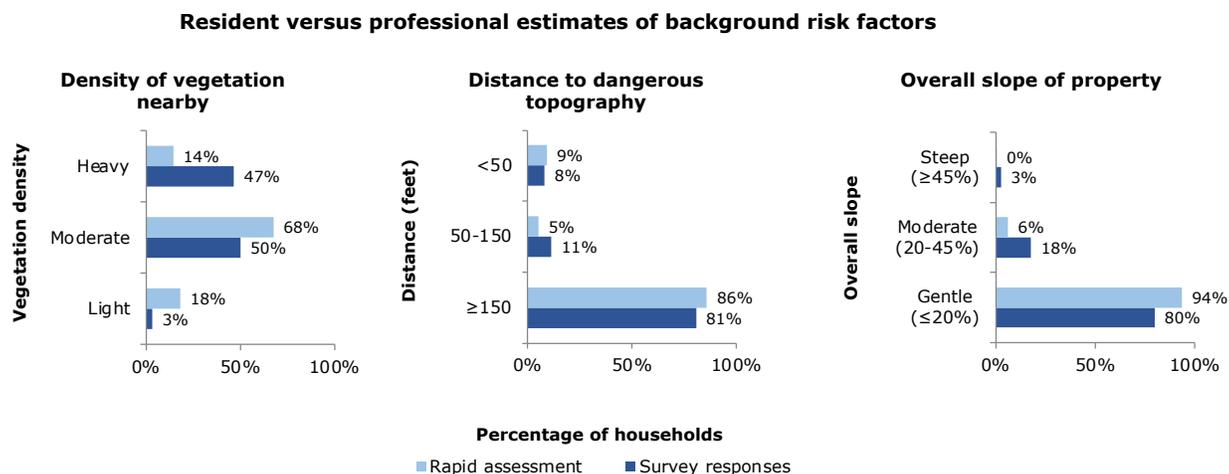


Figure 9—Professional rapid assessment results and survey responses for background risk factors (density of vegetation nearby, distance to dangerous topography, overall slope of property) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

Structural Risk Factors

The materials, design, and construction of a home all play a role in that home’s ignition vulnerability. As shown in figure 10, many properties have structural characteristics that increase the likelihood of negative consequences in the event of a wildfire. Combustible building materials are common in this area for exterior siding, porches, decks, and attached fences. Residents and professionals rate these factors similarly in most cases, except that the professionals found combustible siding to be more common than residents’ responses suggest. This is likely influenced by the presence of homes with mixed siding materials, such as stucco combined with wood siding, perhaps under the eaves or as part of the fascia of a home. The professionals rated homes according to the most vulnerable category present. In the mixed materials example above, the siding rating would have reflected the wood, vinyl, or wood shake rating (higher vulnerability). Similarly, if the professional was not able to distinguish actual, ignitable wood shake from Hardie board siding that is not ignitable but made to look like wood shake, the building exterior is rated as “wood, vinyl, or wood shake.”

Resident versus specialist estimates of structural risk factors

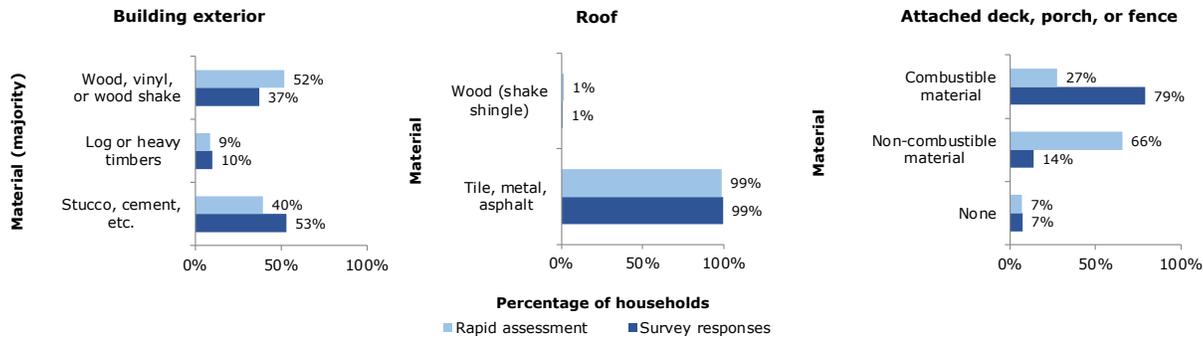


Figure 10—Professional rapid assessment results and survey responses for structural risk factors (building exterior; roof material; attached deck, porch, or fence) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

Access Risk Factors

The risk of wildfire to a home is influenced by the ability of emergency responders to identify and safely reach the property. Although not an explicit focus of the rapid assessment, residents’ ability to evacuate during a wildfire also depends on access issues. As shown in figure 11, some properties have access issues: About 72% have an address posted that is not reflective, over one-third have only one emergency ingress/egress access road, and most driveways have less than 24 feet of horizontal clearance. Residents and the professional have similar estimates for the number of roads leading to the residential structure. However, residents tend to underestimate the width of horizontal clearance of their driveway and thereby overestimate their access risk as compared to the professional. In contrast, residents are more likely than the professional to report their property address as posted and reflective.

Professional versus resident estimates of emergency response risk factors

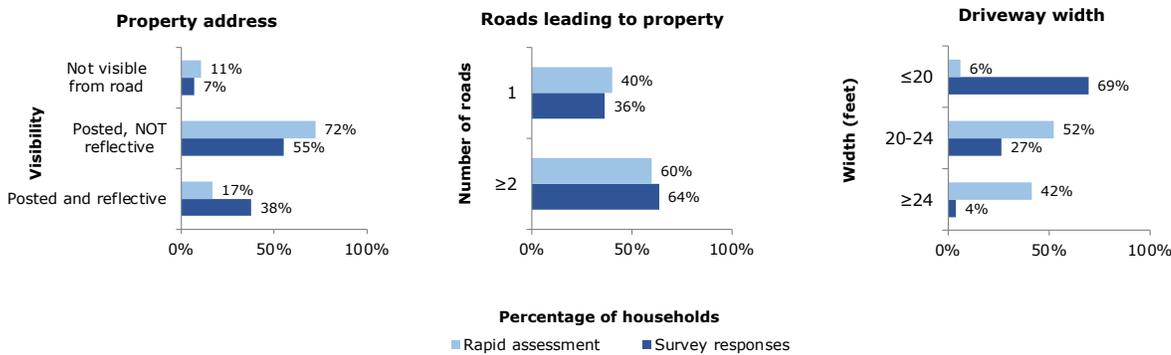


Figure 11—Professional rapid assessment results and survey responses for access risk factors (property address, roads leading to property, width of driveway) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

Defensible Space Risk Factors

Clearing vegetation and other combustible materials near the home creates defensible space. As shown in figure 12, the professional notes that about 58% of properties have less than 30 feet between the structure and overgrown, dense, or unmaintained vegetation. Seven percent

of properties had 10 feet or less of adequate defensible space. Nearly all properties (91%) also have other combustible items, including propane tanks, firewood, construction materials, or flashy vegetation such as pine needles or unirrigated/unmaintained grasses, or both, within 30 feet of the house. Many residents see these factors differently from the professional. Residents tend to rate themselves as having more defensible space and greater distance to other combustibles than noted by the professional.

Resident versus professional estimates of defensible space risk factors

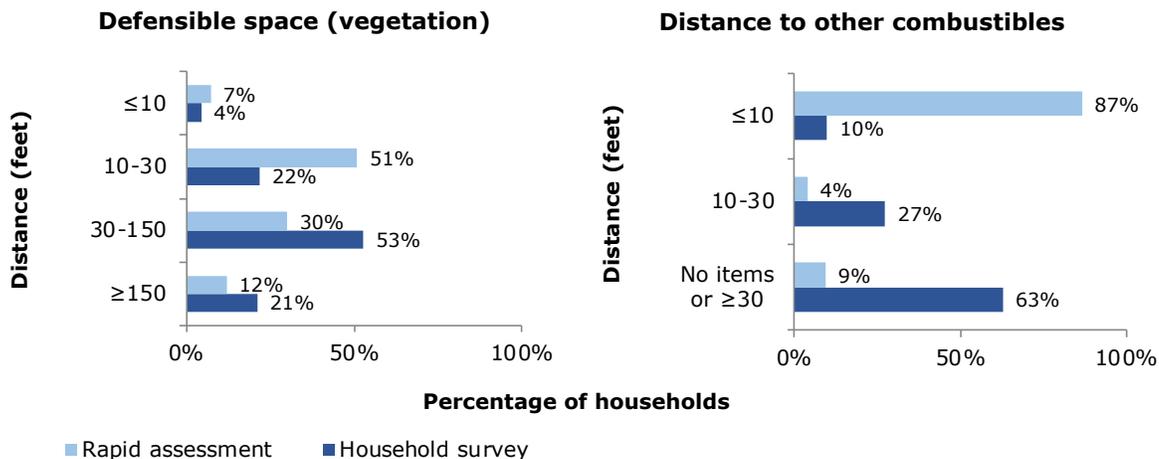


Figure 12—Professional rapid assessment results and survey responses for defensible space risk factors (defensible space—vegetation, distance to other combustibles) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

Rapid Assessment Overall Rating

The overall risk rating from the rapid assessment is a categorized result of the weighted sum of the 11 risk elements, with the weights for each element corresponding to the point values shown in Appendix A. Similarly, the survey elicited an overall risk rating from residents by first telling them that “homes are assessed for overall wildfire risk based on the items asked about in questions 3.1–3.11 above” and then asking, “Now that you have considered these items, how would you rate your current residence’s wildfire risk?” Results in both cases were categorized according to an adjective risk scale, ranging from “low” to “extreme.” Figure 13 demonstrates that the distribution of overall risk ratings from the rapid assessment does not match the distribution of the overall risk ratings from the household survey; residents tend to rate their overall risk lower than the rapid assessment results. Specifically, more than half of residents rated their home as being at “moderate” risk, whereas the most common rating as a result of the rapid assessment was “high.”

For further insight, figure 14 depicts survey residents’ estimates of the chance of a wildfire on their property this year and the chance their home would be destroyed if that happens (reported on fig. 7), grouped by the overall risk rating they assign their own home. The figure suggests that residents might have considered both the probability of a wildfire on their property and the subsequent consequences when determining their home’s overall risk rating.

Professional versus resident wildfire risk rating

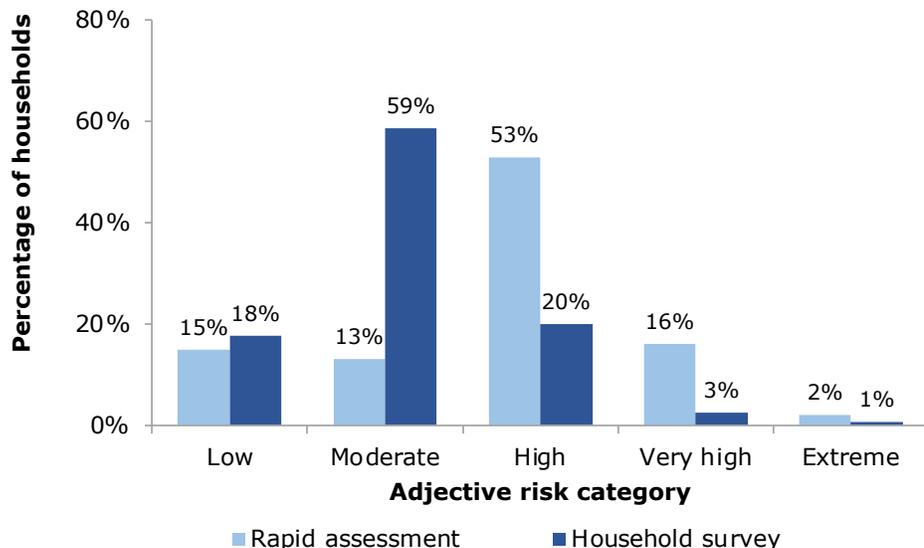


Figure 13—Comparison of overall risk ratings assigned by a professional and residents from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

Resident wildfire predictions grouped by resident overall risk rating

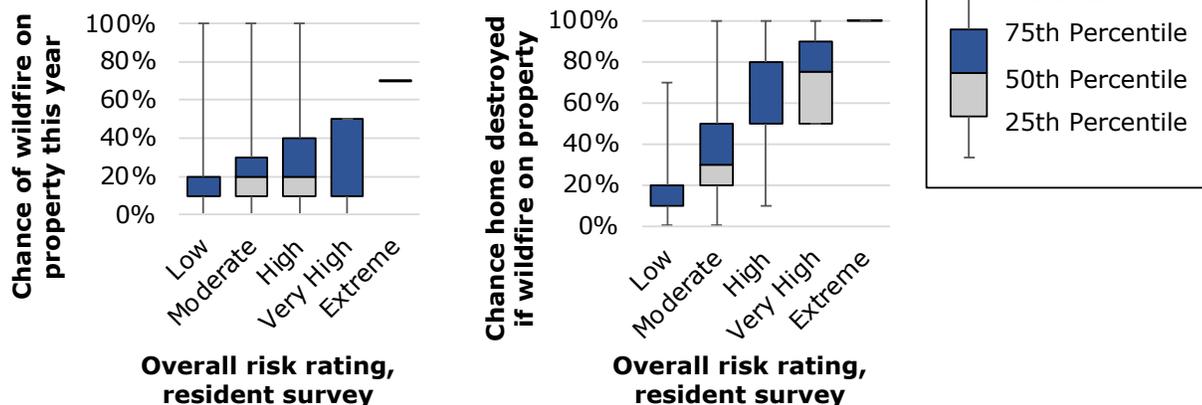


Figure 14—Resident perceptions of wildfire risks grouped by self-assessed overall risk rating (chance of wildfire on property this year; chance of home destroyed if wildfire on property—overall risk rating, household survey) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado. Note that all responses with an overall risk rating of Extreme provided a chance of wildfire on property this year of 70% (left graph) and a chance home destroyed if wildfire on property of 100% (right graph).

Figure 15 also depicts survey residents’ estimates of the chance of a wildfire on their property this year and the chance their home would be destroyed if that happens, but this time grouped by the overall assessed risk rating. This grouping demonstrates that the overall risk rating is not strongly related to residents’ estimates of the probability of wildfire on their property or to the negative consequences if that occurs.

Resident wildfire predictions grouped by professional overall risk rating

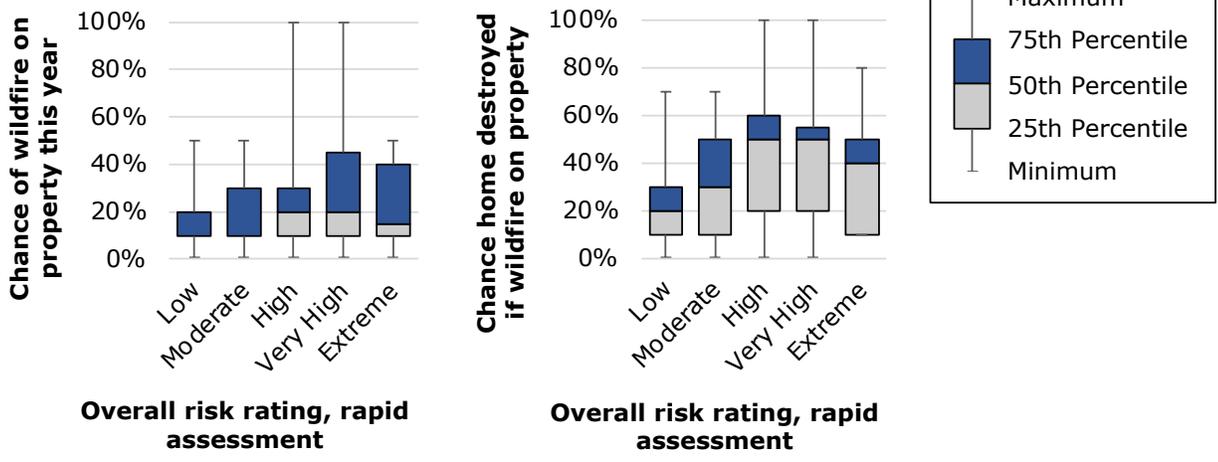


Figure 15—Resident perceptions of wildfire risks grouped by professional’s overall risk rating (chance of wildfire on property this year; chance of home destroyed if wildfire on property—overall risk rating, rapid assessment) from the 2017 data collection effort in Log Hill Mesa Fire Protection District, Colorado.

What Do Residents Think About Wildfire Risk Mitigation?

In this section, we show the survey results pertaining to different aspects of wildfire risk mitigation and residents’ decisions about whether to undertake it. Best practices for wildfire mitigation include reducing vegetation continuity (both horizontal and vertical) around structures and thinning trees and brush on the property. Figure 16 depicts the perceived overall vegetation density on residents’ properties and that of their neighbors. While other actions could change vegetation density without changing wildfire risk, and thus vegetation density is an imperfect proxy for wildfire risk, it is notable that more than half of residents (60%) report a reduction in vegetation density over time for their own properties, but fewer perceive a reduction in density on neighboring properties (36%).

Resident perception of change in vegetation density on neighboring and own property

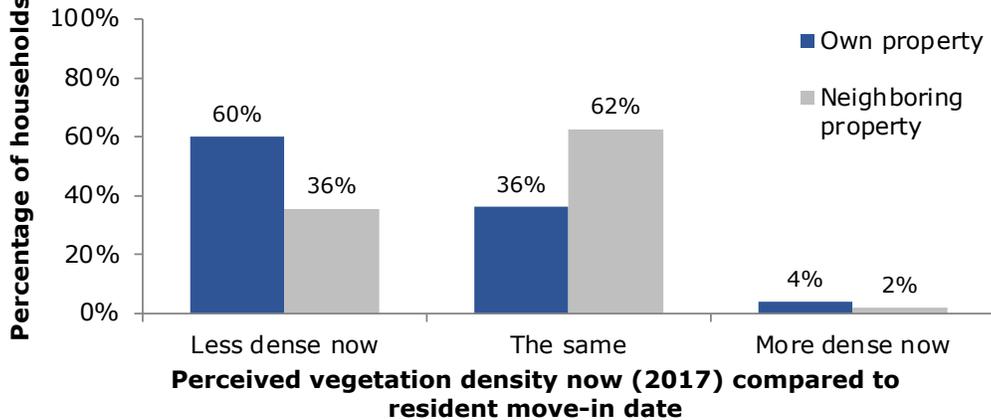


Figure 16—Perceived vegetation density on residents’ properties and that of their neighbors from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Neighbors not only observe risk mitigation on neighboring parcels, they also interact around the topic of wildfire. Figure 17 shows reported interactions with neighbors and perceptions of neighbors’ actions related to wildfire risk mitigation. A strong majority of residents report having interacted with their neighbors about wildfire risk, including 44% who have worked together to reduce wildfire risk on one or both of their properties. In contrast, nearly half of respondents (48%) report having at least one neighbor not taking action to reduce wildfire risk.

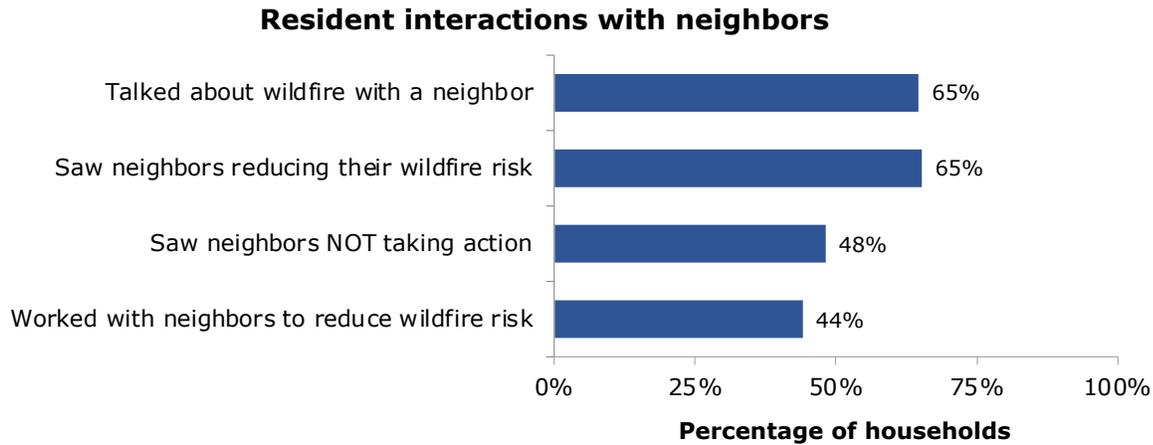
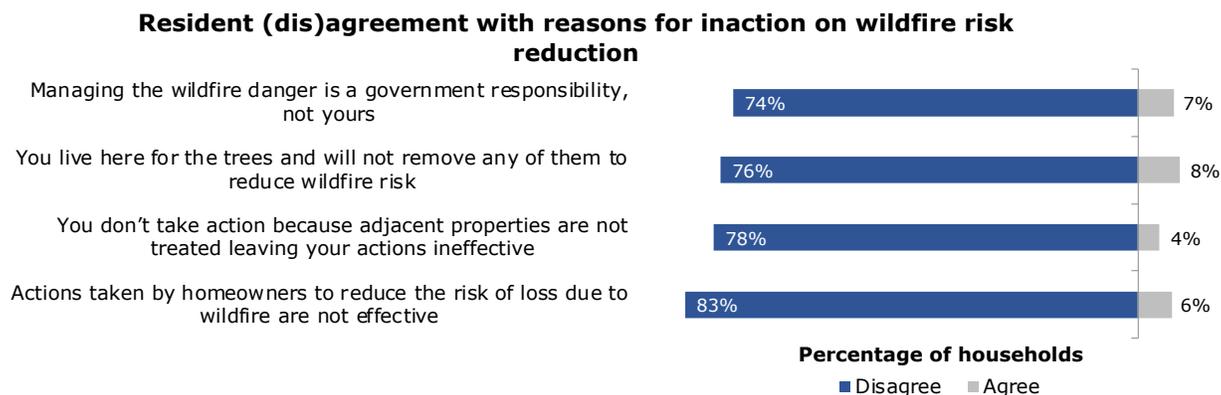


Figure 17—Resident interactions with and perceptions of neighbors concerning wildfire risk from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

Figures 18 and 19 depict residents’ agreement with possible reasons for not taking action to reduce wildfire risk on their property. Specifically, Figure 18 shows that most residents disagree with commonly suggested reasons why they might not reduce their wildfire risk. This includes their general disagreement with the statements that mitigation is ineffective and an unwillingness to remove trees. Figure 19 shows that more than one-third of residents noted the physical difficulty of doing the work and the financial costs/expense as reasons they have not taken risk reduction action.



*Response levels condensed from five categories (1 = "strongly agree" to 5 = "strongly disagree")
Response category 3 = "neutral" not shown*

Figure 18—Resident agreement or disagreement with general reasons for not taking action to reduce wildfire risk from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

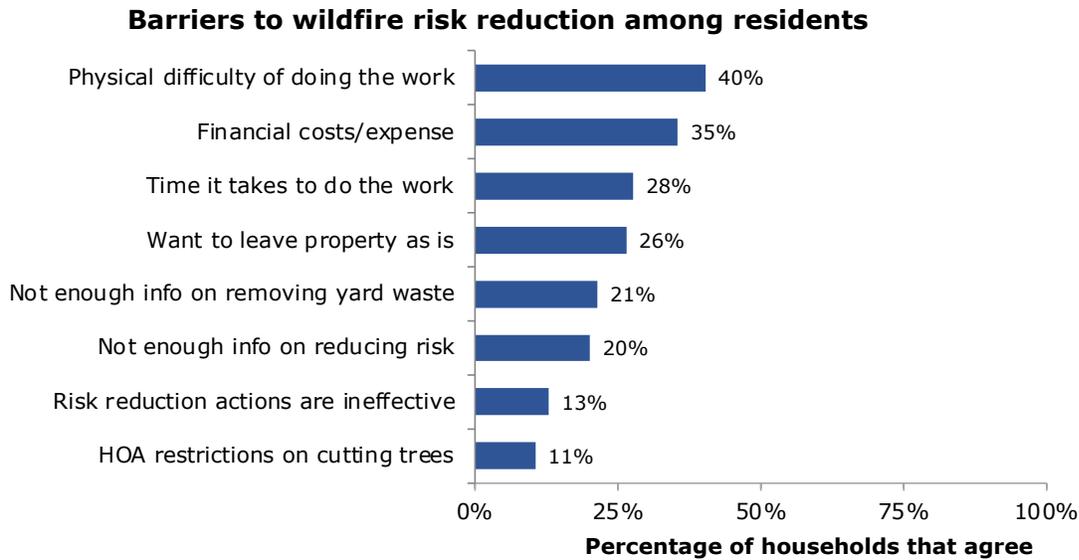


Figure 19—Specific barriers stopping residents from taking action to reduce wildfire risk on their property, from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents. (HOA = homeowners association.)

Figures 20 and 21 depict survey results about incentives that would encourage residents to reduce their wildfire risk. Figure 20 shows that more than one-half of residents report that more specific information about what to do on their property to reduce wildfire risk, physical help, or financial assistance would encourage them to take action. Finally, Figure 21 shows that a majority of residents would take part in a cost-sharing incentive for removing vegetation to reduce their wildfire risk.

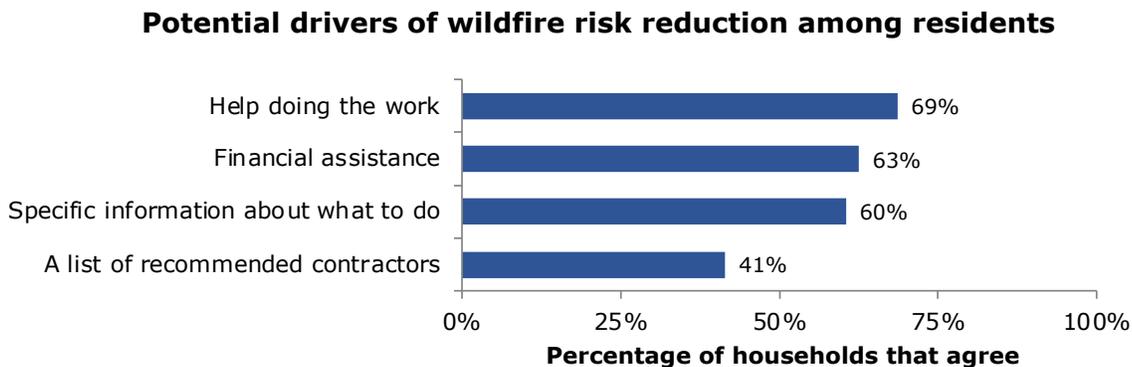
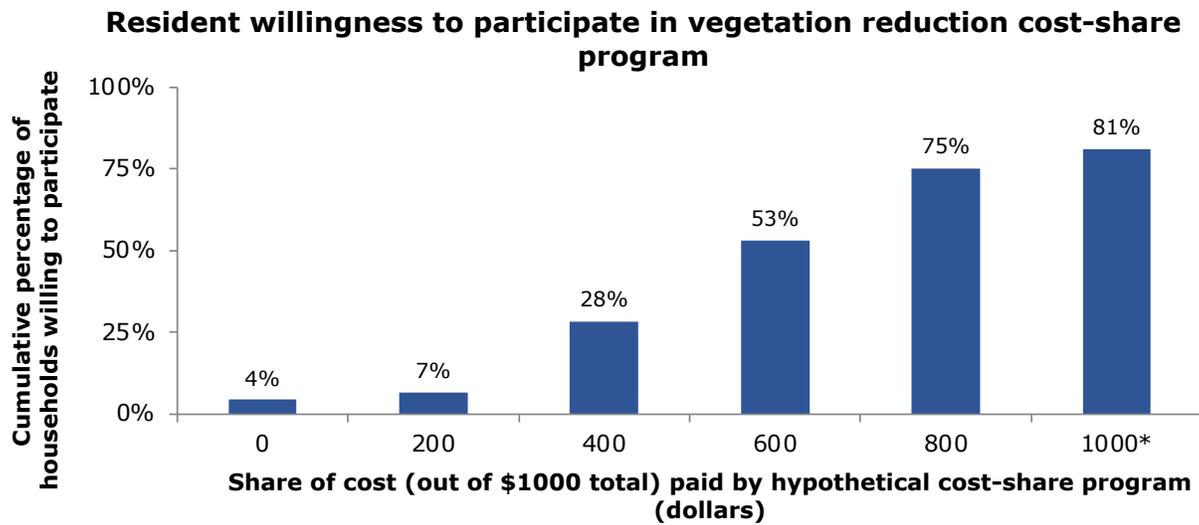


Figure 20—Items that would encourage residents to take action to reduce wildfire risk on their property, from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.



**20% of households would not participate in described program at any amount*

Figure 21—Residents’ willingness to participate in different levels of cost-share incentives for reducing vegetation on their property, from the 2017 survey of Log Hill Mesa Fire Protection District, Colorado, residents.

SUMMARY

Results from the 2017 data collection show that Log Hill Mesa community residents report lower overall risk ratings compared to the professionals (fig. 13) and a majority (52%) expect the fire department will save their home if there is a fire on their property (fig. 8). The wildfire risk information provided by the local fire department and West Region Wildfire Council is reaching most community residents (fig. 7). These two entities may want to focus on educating community residents about how to effectively reduce parcel wildfire risk because suppression resources will likely be limited during a wildfire event. While there are barriers to mitigation (fig. 19), residents said they would take action if community programs can provide help doing the work, financial assistance, and specific direction on what needs to be done (fig. 20). In other words, the data provide some direction on how to move Log Hill Mesa community residents forward on mitigating wildfire risk.

Change Over Time

In 2011 and 2012, the WiRē Team partnered with the West Region Wildfire Council (WRWC) and Log Hill Mesa Fire Protection District to implement the WiRē approach in the Log Hill Mesa community. WRWC repeated the approach in 2017, 6 years after the original rapid wildfire risk assessment and 5 years after the original household survey, to evaluate changes over time in this community in terms of (a) the assessed wildfire risk and (b) the “social landscape.”

Since residents in Log Hill responded to the survey in both 2012 and 2017, there is a unique opportunity to study change over time. In this section, we highlight important changes over time in Log Hill Mesa based on the 2011 and 2017 rapid assessment and the 2012 and 2017 household survey.

Comparison of Overall Rating

Figure 22 compares the overall rapid wildfire risk assessment ratings in Log Hill Mesa Fire Protection District between the 2011 and 2017 assessments. WRWC made two changes to the 2017 rapid assessment as compared to the 2011 assessment. First, WRWC added slope as another background risk element. The slope element captures the average overall slope throughout the area where a home is situated. Second, WRWC added another observed condition to the decks and fencing risk element to capture information about whether noncombustible fencing material is attached to a home. In 2011, the two observed conditions for this element were *None* (i.e., fencing was not considered) and *Combustible deck and/or fence attached to structure*. In 2017, WRWC added *Combustible deck and/or fence attached to structure* and *Non-combustible deck and/or fence attached to structure* as another observed condition. Despite these changes, and notwithstanding any differences on any particular property, the distributions of responses from the two assessments are not statistically different (Kruskal-Wallis test $p = 0.529$).

Comparison of overall professional risk rating

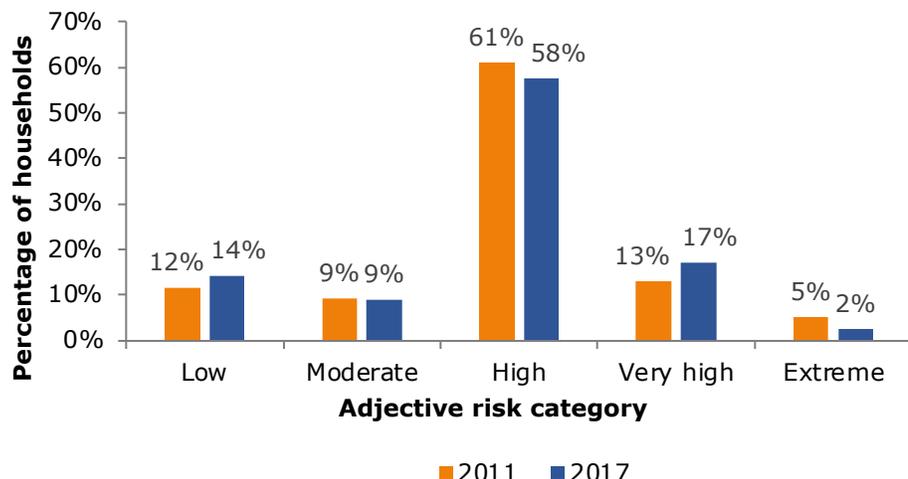


Figure 22—Distributions of overall professional rapid assessment risk ratings from the 2011 and 2017 data collection efforts in Log Hill Mesa Fire Protection District, Colorado.

Figure 23 shows how the overall wildfire risk ratings, as provided by residents in the household survey, varied from 2012 to 2017. In contrast to the professional assessment, the distributions of survey responses differ significantly between the 2 years (Kruskal-Wallis test $p < 0.001$), with a general shift to lower risk ratings. In 2017 most residents rated their risk of wildfire as low to moderate (17% and 59%, respectively) whereas in 2012 most residents rated their risk as moderate to high (49% and 31%, respectively).

Comparison of overall resident wildfire risk rating

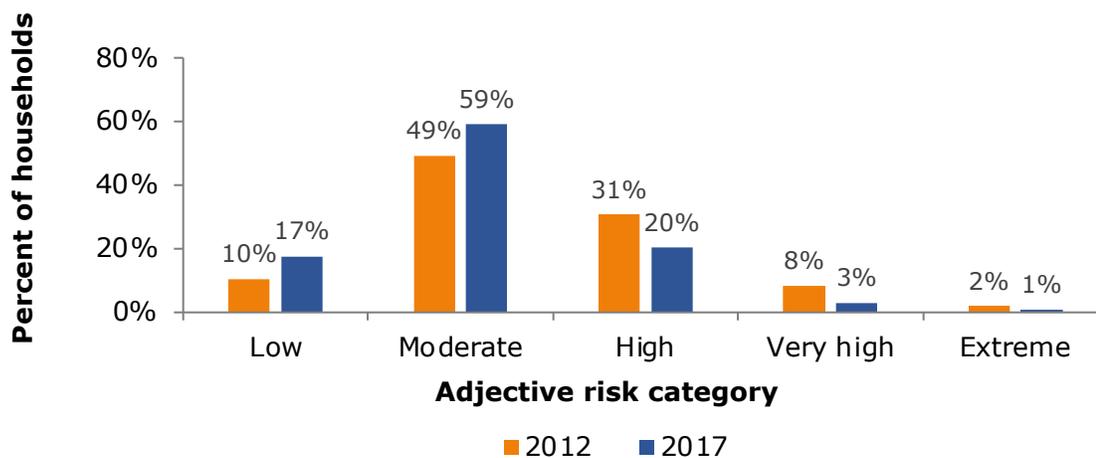


Figure 23—Distributions in the overall resident wildfire risk ratings from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents.

What Do Residents Think About Wildfire?

In this section we highlight a few comparisons of the 2012 and 2017 survey results. Figure 24 depicts sources from which residents report receiving information about wildfire risks in 2012 and 2017. Most responses did not change significantly between the 2 years; only WRWC was reported more frequently as a source in 2017 than in 2012 (63% versus 40%, χ^2 test $p < 0.001$) and only media was reported less frequently in 2017 than in 2012 (27% versus 35%, χ^2 test $p = 0.035$). The local fire department and WRWC are still the only sources of information noted by more than half of the residents in 2017.

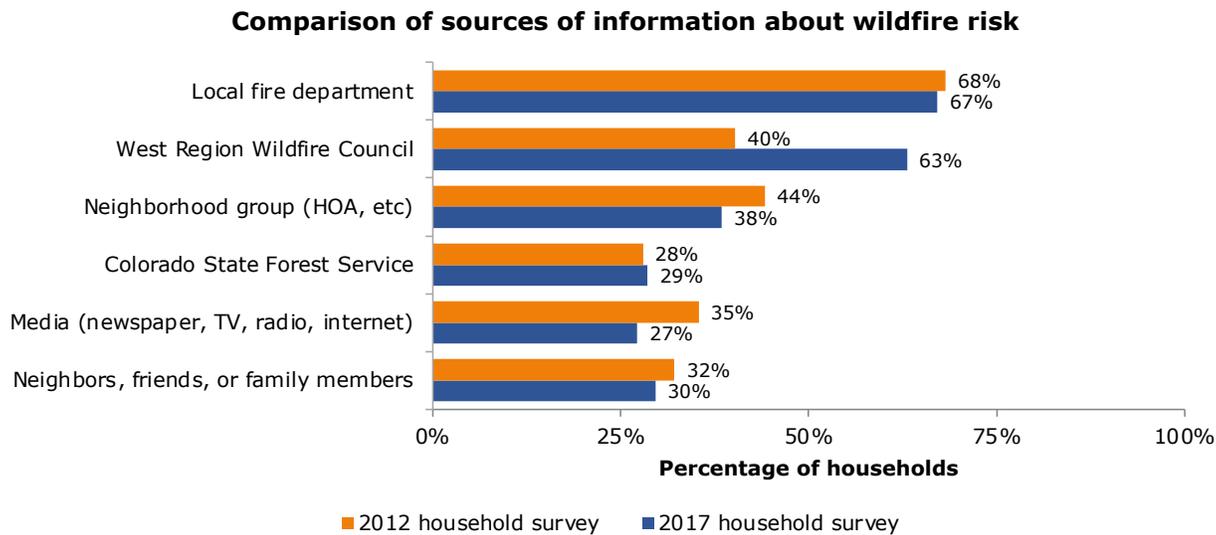


Figure 24—Comparison of sources of information about wildfire risk from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents. (HOA = homeowners association.)

Comparison of What Residents Think About Wildfire Risk Mitigation

Figure 25 shows a continuing trend of reported interactions with neighbors and perceptions of neighbors’ actions related to wildfire risk mitigation. In 2017, residents continued the following actions at similar rates as in 2012:

- Talking with neighbors about wildfire,
- Seeing neighbors taking actions to reduce their wildfire risk,
- Seeing neighbors NOT taking action to reduce wildfire risk, and
- Working with neighbors to reduce wildfire risk.

Of these, only talking with neighbors about wildfire was significantly different between the 2 years, with a small increase from 56% in 2012 to 65% in 2017 (χ^2 test $p = 0.043$).

Comparison of resident interactions with neighbors

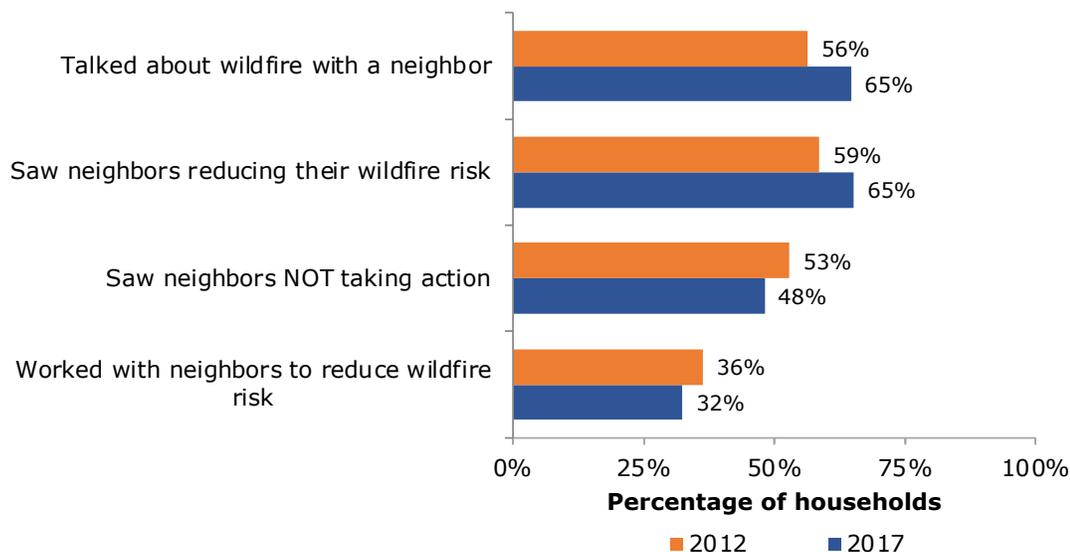


Figure 25—Comparison of resident interactions with neighbors about wildfire risk from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents.

Figure 26 shows that more than one-third of residents in 2012 and 2017 noted the physical difficulty of doing the work and the financial costs/expense as reasons they have not taken risk reduction action, with little change between the 2 years. The one significant change shown reflects a reduction in the proportion of respondents reporting a lack of information for removing yard waste as a barrier from 31% to 21% (χ^2 test $p = 0.010$).

Comparison of barriers to wildfire risk reduction among residents

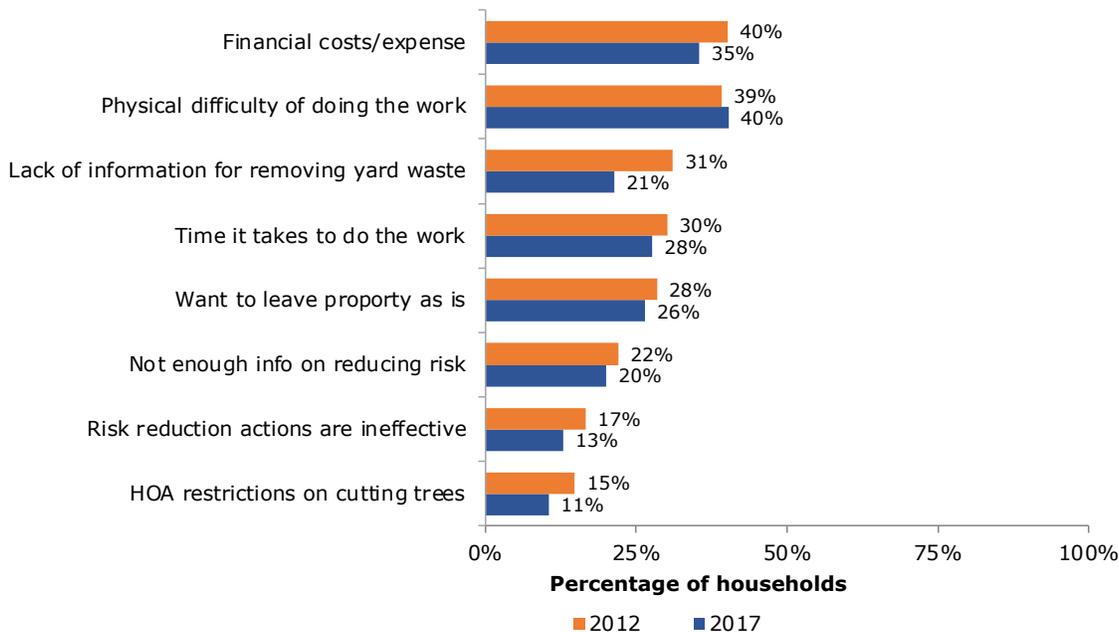


Figure 26—Comparison of specific barriers that stop residents from taking action to reduce wildfire risk on their property from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents. (HOA = homeowners association.)

Figure 27 shows that residents continue to report that more specific information about what to do on their property to reduce wildfire risk, physical help, or financial assistance would encourage them to take action. None of the reported measures differed significantly between the two surveys.

Comparison of potential drivers of wildfire risk reduction among residents

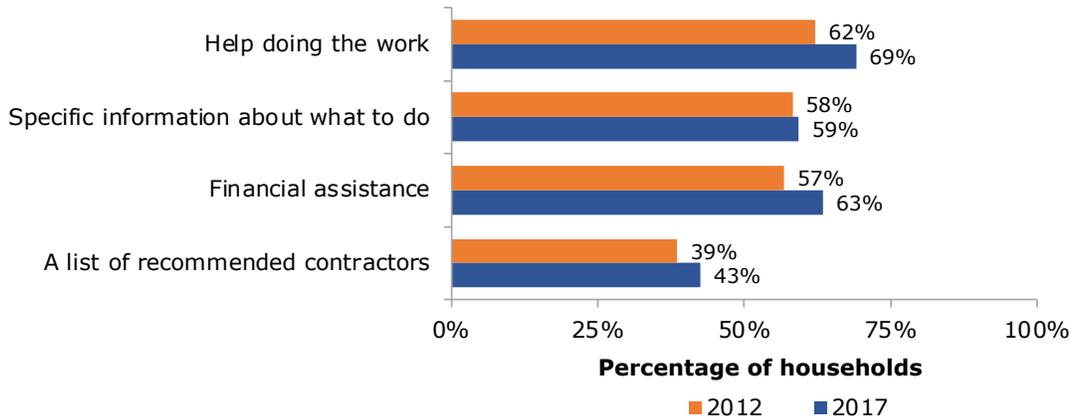


Figure 27—Comparison of factors that would encourage residents to take action to reduce wildfire risk on their property from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents.

Comparison of Perceived Vegetation Density on Properties

Finally, figure 28 compares the proportion of survey respondents who perceived the vegetation on their and their neighbors’ properties as “dense” both at the time of the survey and when the respondent moved in. Ratings of neither respondents’ own properties nor their neighbors’ properties when the respondent moved in changed between the survey years. However, significantly fewer respondents rated the vegetation on their own (21% versus 12%, χ^2 test $p = 0.003$) or their neighboring properties (54% versus 39%, χ^2 test $p < 0.001$) as dense in 2017 versus 2012. This demonstrates that respondents generally perceive the density of vegetation in the area of their homes as lower in 2017 than in 2012.

Comparison of respondents' perceptions of the density of vegetation on their and their neighbors' properties

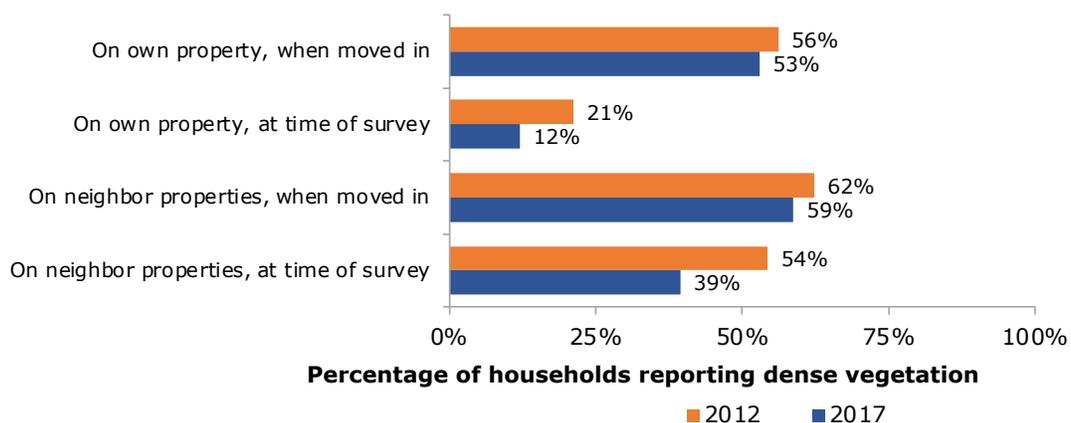


Figure 28—Comparison of respondents’ perceptions of the density of vegetation on their and their neighbors’ property when the respondent moved in and at the time of the survey from the 2012 and 2017 surveys of Log Hill Mesa Fire Protection District, Colorado, residents. Displayed percentages correspond to the percentage of respondents choosing 4 or 5 on a scale from 1 (“Very Sparse”) to 5 (“Very Dense”) for each question.

CONCLUSIONS

This report summarizes the results of a 2017 collaboration between WRWC and the WiRē team to understand the nature of wildfire risk in the community served by the Log Hill Mesa Fire Protection District. In general, the results highlight an engaged community with potential for more wildfire risk reduction on properties. Because a similar data collection effort was completed in 2011/2012 and 2017, we were also able to look at change over time. Although the overall wildfire risk ratings from the professional assessment did not change between 2011 and 2017, respondents rated their own overall wildfire risk as lower in 2017 versus 2012. This perhaps relates to respondents also perceiving the vegetation density on both their properties and their neighbors' properties as lower in 2017 than in 2012; previous research has found residents' overall risk ratings tend to emphasize vegetation density over other factors even when they are asked to think about a range of characteristics of their property (Meldrum et al. 2015).

Comparison of survey results suggests little change across most other measured variables over time, with results suggesting slight increases in engagement amongst residents and a slight reduction in barriers to mitigation. The limited changes observed suggest significant inertia in the ways that community residents engage with wildfire risk over time. Given the sustained effort by WRWC and its partners to engage with this community, reflected in part by the increased proportion of respondents noting WRWC as a source of information about wildfire risk, the lack of significant changes underscores the challenge of moving residents toward reducing their wildfire risk. In particular, the only perceived barrier with a significant reduction over time, a lack of known options for removing yard waste, was the focus of substantial effort by WRWC between 2012 and 2017 in the form of an expanded and heavily advertised "community chipper days" program. These results highlight the need for further research into not only understanding how residents' engagement with wildfire risk changes over time but also continued innovations in how to efficiently encourage and support that engagement.

REFERENCES

- Brenkert-Smith, H.; Dickinson, K.L.; Champ, P.A.; [et al]. 2013. Social amplification of wildfire risk: The role of social interactions and information sources. *Risk Analysis*. 33(5): 800–817. <https://doi.org/10.1111/j.1539-6924.2012.01917.x>
- Champ, P.A.; Brenkert-Smith, H. 2016. Is seeing believing? Perceptions of wildfire risk over time. *Risk Analysis*. 36(4): 816–830. <https://doi.org/10.1111/risa.12465>
- Champ, P.A.; Donovan, G.H.; Barth, C.M. 2013. Living in a tinderbox: Wildfire risk perceptions and mitigating behaviours. *International Journal of Wildland Fire*. 22(6): 832–840. <http://dx.doi.org/10.1071/WF12093>
- Cohen, J.D. 2000. Preventing disaster: Home ignitability in the wildland-urban interface. *Journal of Forestry*. 98(3): 15–21. <https://doi.org/10.1093/jof/98.3.15>
- Dillman, D.A. 2000. *Internet and mail surveys: The tailored design method*. 2000. New York: John Wiley. 480 p.
- Log Hill Mesa. 2012. Log Hill Mesa Fire Protection District Community Wildfire Protection Plan. Available at: https://www.cowildfire.org/wp-content/uploads/FINAL_LogHill_Mesa%20Fire%20Protection%20District_CWPP.pdf. [Accessed 25 May 2018].
- McGee, T.K.; McFarlane, B.L.; Varghese, J. 2009. An examination of the influence of hazard experience on wildfire risk perceptions and adoption of mitigation measures. *Society and Natural Resources*. 22(4): 308–323. <https://doi.org/10.1080/08941920801910765>
- Meldrum, J.R.; Barth, C.; Colter-Falk, L.; [et al]. 2013. Living with wildfire in Log Hill Mesa, Colorado. Res. Note RMRS-RN-66. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 34 p. <https://doi.org/10.2737/RMRS-RN-66>
- Meldrum, J.R.; Brenkert-Smith, H.; Champ, P.; [et al.]. 2019. Interactions between resident risk perceptions and wildfire risk mitigation: Evidence from simultaneous equations modeling. *Fire*. 2(3): 46. <https://doi.org/10.3390/fire2030046>
- Meldrum, J.R.; Champ, P.; Brenkert-Smith, H.; [et al.]. 2015. Understanding gaps between the risk perceptions of wildland-urban interface (WUI) residents and wildfire professionals. *Risk Analysis*. 35(9): 1746–1761. <https://doi.org/10.1111/risa.12370>
- Ouray County. 2011. Ouray County, Colorado Community Wildfire Protection Plan. Available at: https://www.cowildfire.org/wp-content/uploads/Ouray_Final_CWPP.pdf. [Accessed 25 May 2018].
- U.S. Census Bureau. 2016. Quick facts: Ouray County, Colorado. Available at <https://www.census.gov/quickfacts/fact/table/ouraycountycolorado,CO/PST045217>. [Accessed 17 May 2018].

Appendix A: West Region Wildfire Council Rapid Wildfire Risk Assessment

CATEGORY	OBSERVED CONDITION	POINTS
Address Visible	Posted, reflective, non-combustible	0
	Posted but NOT reflective	5
	Not visible from the road	15
Ingress / Egress	Two or more roads in/out	0
	One road in/out	10
Driveway Clearance	Greater than 24'	0
	Between 20' -24'	5
	Less than 20'	10
Distance to Dangerous Topography	Greater than 150'	0
	Between 50' - 150'	30
	Less than 50'	75
Slope	Less than 20%	0
	Between 20% - 45%	20
	Greater than 45%	40
Background Fuels	Light	25
	Moderate	50
	Heavy	75
Defensible Space	Greater than 150'	0
	Between 30' - 150'	50
	Between 10' - 30'	75
	Less than 10'	100

CATEGORY	OBSERVED CONDITION	POINTS
Building Exterior	Non-combustible	0
	Log and/or heavy timbers	20
	Wood, vinyl or other combustible material	60
Roofing Material	Class A	0
	Class B, Class C or Unrated	200
Other Combustibles	None, Greater than 30' from structure	0
	Between 10' - 30' from structure	10
	Less than 10' from structure	30
Decks and Fencing	None	0
	Non-combustible deck and/or fence attached to structure	20
	Combustible deck and/or fence attached to structure	50

Overall Total Rating	Min	Max
Low	25	150
Moderate	151	175
High	176	270
Very High	271	365
Extreme	366	665

Appendix B: Log Hill Mesa Fire Protection District 2017 Household Survey Codebook

Living with Wildfire on Log Hill Mesa Summer 2017



www.COwildfire.org



www.loghillfire.org

Entered survey responses: 299

n = number of observations

Blue numbers are percent responses (might not total to 100% due to rounding)

Red ALL CAPS are variable names

Living with Wildfire on Log Hill Mesa Summer 2017



www.COwildfire.org



www.loghillfire.org

Entered survey responses: 299

n = number of observations

Blue numbers are percent responses (might not total to 100% due to rounding)

Red ALL CAPS are variable names

Please note: We encourage use of this survey instrument for applied, research, and/or publication purposes but request to be notified before any such use at: info@wildfireresearchcenter.org

Section 1: In this first section of the survey, we ask about your residence on Log Hill Mesa. If you own multiple homes, please answer the following questions with respect to your Log Hill Mesa residence. We refer to this home as your *current residence*.

MONTHS (n=283)

1.1 How many months per year do you live at your current residence? *(Fill in the blank)*

AVERAGE = 10 months; 12 months = 75%

FULLTIME (n=292)

1.2 In what year did you move to your current residence? *(Fill in the blank)*

AVERAGE = 2006

YRBUILD (n=273)

1.3 In what year was your current residence originally built? *(Fill in the blank)*

AVERAGE = 1998

MOVE1 (n=290)

1.4 Do you expect to move away and/or sell your current residence in the next five years? *(Circle one number)*

81% No

19% Yes

RISKAWAR (n=295)

1.5 How aware of wildfire risk were you when you bought or decided to rent your current residence? *(Circle one number)*

9% Not aware

39% Somewhat aware

51% Very aware

1% Don't remember

CONCERNED (n=295)

1.6 Are you concerned about wildfire risk affecting your current residence? *(Circle one number)*

15% No

85% Yes

Section 2: In this section, we ask about your experience with, and preparation for, wildfire.

FIRE (n=292)

2.1 What is the closest distance (as a crow flies) a wildfire has come your current residence?
(Circle one number)

- 3% There has been a wildfire on your property
- 13% Less than 2 miles away but not on your property
- 22% 2 to 10 miles away
- 24% More than 10 miles away
- 39% Not sure

2.2 Have you, or anyone you know, ever evacuated from a residence due to a wildfire or threat of a wildfire? (Circle all that apply)

- 76% No **EVACUATED1 (n=296)**
- 6% Yes, you have evacuated due to a wildfire or the threat of a wildfire **EVACUATED2 (n=296)**
- 18% Yes, someone you know has evacuated due to a wildfire or the threat of a wildfire **KNOWEVAC (n=296)**

2.3 Have you, or anyone you know, ever had a home damaged by a wildfire or smoke from a wildfire? (Circle all that apply)

- 86% No **DAMAGE1 (n=295)**
- 1% Yes, you have had a home damaged by a wildfire or smoke from a wildfire **DAMAGE2 (n=295)**
- 12% Yes, someone you know has had a home damaged by a wildfire or smoke from a wildfire **KNOWDAM (n=295)**

2.4 Do you currently have an evacuation plan for your household in the event a wildfire threatens your current residence? (Circle all that apply)

- 22% No **EVACPLAN (n=295)**
- 64% Yes, for people in my household **EVACPPL (n=295)**
- 39% Yes, for pets in my home and on my property **EVACPETS (n=295)**
- 6% Yes, for livestock on my property **EVACLIVSTOC (n=294)**

NOTIFICATION (n=294)

2.5 Have you opted into either CodeRed or the Wireless Emergency Notification System to receive notifications about emergencies at your current residence? *(Circle one number)*

46% No

54% Yes → Have you ever received a notification through this system to evacuate or prepare to evacuate your current residence due to wildfire? *(Circle one number)*

96% No

REVERSECALL (n=160)

4% Yes

RISKREDUCE1_LH2017 (n=296)

2.6 Have you done anything in the past 5 years to reduce the risk of wildfire to your current residence? *(Circle one number)*

11% No

89% Yes → Which best describes the actions have you taken? *(Circle all that apply)*

75% Reduced the amount of vegetation within 150 feet of your home **RISKREDUCE2 (n=262)**

60% Reduced the amount of other combustible items within 30 feet of your home (moved propane tanks, removed woodpiles, etc.) **RISKREDUCE3 (n=262)**

20% Changed exterior building materials to something less combustible (e.g., improved deck, roof, or siding materials) **RISKREDUCE4 (n=262)**

15% Other, not on this list (e.g. covered vents, added chimney screens) **RISKREDUCE5 (n=262)**

INSURE9 (n=262)

2.7 Do you have insurance for your current residence? *(Circle one number)*

2% No

98% Yes → Does wildfire risk affect your homeowners insurance for your current residence in the following ways? *(Circle one number for each item)*

	No	Yes	Don't Know
Because of wildfire risk, you pay more for homeowners insurance than you otherwise would. INSURE4 (n=273)	16%	41%	43%
Because of wildfire risk, an insurance company has canceled or refused to renew your policy. INSURE3 (n=264)	76%	15%	9%
Your homeowners insurance company requires wildfire risk mitigation as a condition of your policy. INSURE5 (n=268)	54%	12%	34%
Because of actions you have taken to reduce wildfire risk, you pay less for homeowners insurance than you otherwise would. INSURE10 (n=268)	46%	11%	43%
Because of actions your community has taken to reduce wildfire risk, you pay less for homeowners insurance than you otherwise would. INSURE11 (n=270)	31%	11%	58%

Section 3: In this section, we ask about the characteristics of your **current residence** and the area near your **current residence**.

ROOFTYPE (n=288)

3.1 What type of roof does your current residence have? (*Circle one number*)

- 1% Wood (shake shingles)
- 99% Tile, metal, or asphalt shingles

SIDETYPE (n=292)

3.2 What type of exterior siding covers the **majority** of your current residence? (*Circle one number*)

- 54% Stucco, cement, brick, stone, or other noncombustible siding
- 10% Log or heavy timbers
- 36% Wood or vinyl siding

ATTACHMENT (n=297)

3.3 Does your current residence have a balcony, deck, porch, or fence attached to the structure? (*Circle one number*)

- 7% No
- 93% Yes → Is **any** part of the balcony, deck, porch, or fence made of wood? (*Circle one number*)
 - 14% No
 - 86% Yes

ATTACHCOMB (n=273)

DRIVEWAYW (n=294)

3.4 How wide is your driveway at the **narrowest** point? (*Circle one number*)

- 69% Less than 20 feet (one car wide)
- 27% 20 – 24 feet (two cars wide)
- 4% More than 24 feet (more than two cars wide)

HOMENUM (n=297)

3.5 Is your house number posted at the end of your driveway? (*Circle one number*)

- 8% No
- 92% Yes → Is the posted number reflective? (*Circle one number*)
 - 59% No
 - 41% Yes

REFLECT (n=269)

CLOSEVEG (n=295)

3.6 What is the **closest** distance from your house to overgrown, dense, or unmaintained vegetation? (*Circle one number*)

- 4% Less than 10 feet
- 22% 10 – 30 feet
- 53% 31 – 150 feet
- 21% More than 150 feet

COMBUST (n=294)

3.7 What is the **closest** distance from your house to combustible items other than vegetation such as firewood, a propane tank, combustible patio furniture, or other materials that could easily ignite? (*Circle one number*)

- 10% Less than 10 feet
- 28% 10 – 30 feet
- 62% More than 30 feet

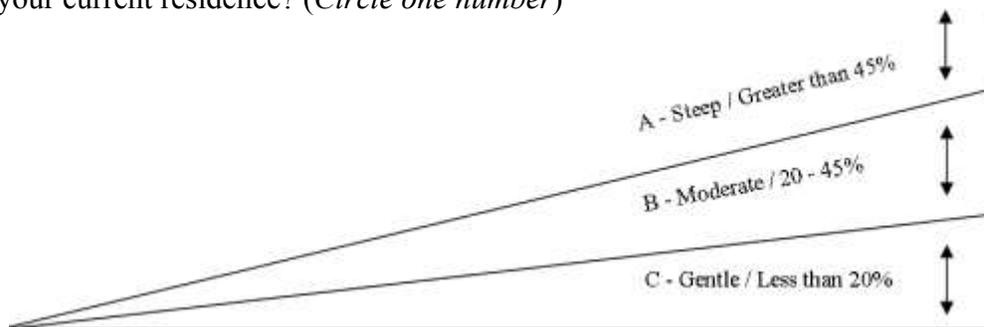
RIDGE (n=294)

3.8 What is the **closest** distance from your house to a ridge, steep drainage, or narrow canyon? (*Circle one number*)

- 7% Less than 50 feet
- 12% 50 – 150 feet
- 81% More than 150 feet

SLOPE (n=291)

3.9 The “slope” or “grade” of a property refers to the steepness of the land. A property may have steep, moderate, and gentle slopes. How would you describe the **overall** slope of your current residence? (*Circle one number*)



- 3% A - Steep / Greater than 45%
- 19% B - Moderate / 20 – 45%
- 79% C - Gentle / Less than 20%

ROADS (n=287)

3.10 If the road you use to access your current residence was blocked due to a wildfire, is there another road you could use to get out of your community? *(Circle one number)*

- 38% No
- 62% Yes

DOMVEG (n=291)

3.11 Which of the following best describes the **dominant** vegetation on your property and those properties immediately surrounding you? *(Circle one number)*

- 3% Grasses
- 49% Light brush and/or isolated trees (e.g., grass/sage mix with some pinion-juniper and/or ponderosa pine)
- 47% Dense brush and/or dense trees (e.g., clusters of pinion-juniper and/or ponderosa pine)

RISKRATE (n=283)

3.12 Homes are assessed for overall wildfire risk based on the items asked about in questions 3.1 – 3.11 above. What do you think is your home’s **current** overall wildfire risk rating? *(Circle one number)*

- 17% Low Risk
- 59% Moderate Risk
- 20% High Risk
- 3% Very High Risk
- 1% Extreme Risk

CHANCES1 (n=287)

3.12 What do you think is the chance that a wildfire will start on or spread to your property this year? *(Circle one number)*

	100	90	80	70	60	50	40	30	20	10	0
For Sure	1%	0%	0%	1%	0%	14%	4%	9%	20%	45%	4%
No Chance											

CHANCES2 (n=287)

3.13 If a wildfire starts on or spreads to your property this year, what do you think is the chance that your home will be destroyed or severely damaged? *(Circle one number)*

	100	90	80	70	60	50	40	30	20	10	0
For Sure	4%	1%	6%	5%	3%	24%	2%	13%	18%	20%	2%
No Chance											

Section 4: Please think about the properties across the street, next to, or bordering your property (may include vacant lots or publicly owned land). Even if you live on a large property and your neighbors are far away, the following questions refer to the owners/managers of these adjacent properties as your *neighbors*. The properties themselves are referred to as *neighboring properties*.

TALKFIRE (n=294)

4.1 Have you ever talked about wildfire issues with a neighbor? (*Circle one number*)

35% No

65% Yes

NACTION (n=293)

4.2 Have any of your neighbors done anything to reduce the risk of wildfire on their property? (*Circle one number*)

16% No → Skip to Question 4.5

65% Yes

19% Don't know → Skip to Question 4.5

WHENACT (n=188)

4.3 When did your neighbors undertake action(s) to reduce risk of wildfire on their property in relation to any actions you have undertaken? (*Circle one number*)

3% You have not taken any action

24% They took action before you did

22% They took action after you did

2% They plan to take action

32% You took action around the same time

15% Don't know

WORKN (n=174)

4.4 Have you ever worked with any of your neighbors to reduce the risk of wildfire on your property or that of your neighbors? (*Circle all that apply*)

74% No

15% Yes, on your property

11% Yes, on your neighbors' properties

SLACKER (n=289)

4.5 Do you have any neighbors who are **not** taking action to address what you would consider sources of wildfire risk in the event of a wildfire (e.g., dense vegetation) on their property? (Circle one number)

25% No

48% Yes

27% Don't know

4.6 How would you describe the vegetation on your property and the **neighboring properties**? (Circle one number for each)

	Very Sparse				Very Dense
When you first moved in, the vegetation on your property was... VEG1 (n=289)	2%	13%	32%	24%	29%
Currently, the vegetation on your property is... VEG2 (n=290)	6%	37%	45%	8%	4%
When you first moved in, the vegetation on most of the neighboring properties was... VEG3 (n=286)	2%	7%	32%	29%	30%
Currently, the vegetation on most of the neighboring properties is... VEG4 (n=289)	4%	12%	45%	27%	12%

Section 5: In this section, we ask about sources of wildfire information and wildfire beliefs.

5.1 From which of the following sources have you received information about reducing the risk of wildfire? *(Circle all that apply)*

- 67% Local fire department SOURCE1 (n=295)
- 63% West Region Wildfire Council SOURCEW (n=295)
- 38% Neighborhood group (homeowners group, neighborhood watch, etc.) SOURCE2 (n=294)
- 30% Neighbors, friends, or family members SOURCE3 (n=294)
- 27% Media (newspaper, TV, radio, internet) SOURCE4 (n=294)
- 29% Colorado State Forest Service SOURCE6 (n=294)
- 16% US Forest Service or US Bureau of Land Management SOURCE7 (n=294)
- 15% A wildfire related website SOURCEWEB (n=294)
- 15% Your homeowners insurance company SOURCEINSURE (n=295)
- 6% Other SOURCE9 (n=294)
- 8% None of the above. You have not received any information about wildfire. SOURCE10 (n=294)

5.2 If there is a wildfire on your property, how likely do you think it is that the following would occur? *(Circle one number for each item)*

	Not Likely	1	2	3	4	Very Likely	Not Applicable
You would put the fire out. LACT1 (n=279)	33%	23%	22%	14%	9%	0%	
The fire department would save your home. LACT2 (n=281)	7%	9%	32%	32%	20%	0%	
There would be some smoke damage to your home. LACT3 (n=282)	4%	10%	28%	26%	31%	0%	
There would be some physical damage to your home. LACT4 (n=282)	6%	15%	29%	24%	26%	0%	
Your home would be destroyed. LACT5 (n=280)	21%	21%	27%	17%	13%	1%	
You would suffer financial losses due to the loss of business/income on your property. LACT6 (n=282)	34%	11%	9%	10%	21%	16%	
Your trees and landscape would burn. LACT7 (n=281)	2%	4%	17%	21%	55%	1%	
Your neighbors' homes would be damaged or destroyed. LACT9 (n=278)	4%	11%	26%	30%	26%	3%	
Your community water supply would be threatened. LACT10 (n=277)	25%	20%	18%	14%	17%	6%	
The fire would spread to nearby public lands. LACT11 (n=280)	13%	11%	24%	19%	26%	7%	

5.3 How much do you agree or disagree with the following statements about wildfire?
(Circle one number for each statement)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
With proper technology, we can control most wildfires after they have started. STATE2 (n=281)	3%	25%	33%	32%	6%
Wildfires that threaten human life should be put out. STATE3 (n=287)	60%	35%	3%	2%	1%
Wildfires that threaten property should be put out. STATE4 (n=287)	38%	46%	14%	2%	1%
During a wildfire, saving homes should be a priority over saving forests. STATE5 (n=286)	34%	46%	16%	4%	1%
Wildfires are a natural part of the balance of a healthy forest/ecosystem. STATE6 (n=286)	38%	44%	13%	3%	2%
You live here for the trees and will not remove any of them to reduce wildfire risk. STATE11 (n=289)	1%	6%	16%	41%	36%
Managing wildfire risk is primarily a government responsibility. STATE13 (n=287)	2%	5%	19%	49%	25%
Actions taken by homeowners to reduce the risk of loss due to wildfire are not effective. STATE14 (n=288)	1%	5%	11%	55%	28%
You don't take action because adjacent properties are not treated leaving your actions ineffective. STATE17 (n=287)	1%	2%	18%	47%	31%

Section 6: In this section, we would like to know about your willingness to reduce the risk of wildfire on your property.

6.1 Please tell us if each item listed below is a factor that keeps you from undertaking actions to reduce the wildfire risk on your property. *(Circle one number for each item)*

	Keeps you from taking action?	
	No	Yes
Financial expense/ cost FACTOR1 (n=282)	65%	35%
Time it takes to do the work FACTOR2 (n=282)	72%	28%
Physical difficulty of doing the work FACTOR3 (n=283)	60%	40%
Lack of specific information on how to reduce wildfire risk on your property FACTOR4 (n=279)	80%	20%
Lack of effectiveness of risk reduction actions FACTOR5 (n=279)	87%	13%
Do not want to change the way your property looks FACTOR6 (n=280)	74%	26%
Lack of information about or options for removal of slash or other materials from thinning trees and other vegetation. FACTOR7 (n=276)	79%	21%
Lack of awareness of wildfire risk FACTOR8 (n=281)	91%	9%
Restrictions by homeowners' association on cutting trees FACTOR9 (n=276)	89%	11%

6.2 Would any of the following items encourage you to reduce the wildfire risk on your property? *(Circle all that apply)*

63%	Financial assistance INCENTV1 (n=276)
59%	Specific information about what needs to be done INCENTV2 (n=275)
69%	Help doing the work (thinning trees and vegetation and/or removal of debris) INCENTV3 (n=275)
43%	A list of recommended contractors that could be hired to do the work INCENTV4 (n=275)
12%	Other INCENTV5 (n=275)

PARTICIPATE (n=277)

6.3 While costs vary, the average cost to a homeowner of having a contractor remove vegetation to reduce wildfire risk is approximately \$1000 per acre. If your property is less than one acre, the average cost to reduce risk on the entire property is approximately \$1000. If a grant program paid for a share of the cost of this work on your property, would you participate in the program? *(Circle one number)*

20% No

80% Yes → Please circle the **highest** amount that you would be willing to pay per acre to have a contractor remove vegetation. **AMTUPAY (n=211)**

	<u>Amount you pay</u>		/	<u>Amount grant pays per acre</u>	
5%	\$1000		/	\$0	
3%	\$800		/	\$200	
27%	\$600		/	\$400	
31%	\$400		/	\$600	
27%	\$200		/	\$800	
7%	\$0		/	\$1000	

AWAREDEDUCT (n=287)

6.4 Are you aware that, since 2009, the Colorado Department of Revenue has offered a tax deduction (up to \$2500) for certain wildfire mitigation costs? *(Circle one number)*

79% No

21% Yes → Have you ever claimed this tax deduction? *(Circle one number)*

CLAIMDEDUCT (n=60)

62% No

38% Yes

Section 7: In this section, we ask about personal and household characteristics. As with all questions in this survey, your responses are completely confidential.

7.1 Do you view yourself as someone who is fully prepared to take risks, or do you try to avoid taking risks? *(Circle one number)*

	Not at all willing to take risks										Very willing to take risks
In general											
RISKTAK1 (n=280)	5%	5%	8%	20%	11%	22%	13%	7%	7%	2%	1%

7.2 On the same scale, how would you assess your risk tolerance in the following areas? *(Circle one number for each item)*

	Not at all willing to take risks										Very willing to take risks
Driving a car											
RISKTAK2 (n=278)	14%	11%	18%	15%	8%	13%	7%	5%	5%	2%	4%
Financial matters											
RISKTAK3 (n=279)	6%	11%	15%	18%	10%	15%	13%	6%	5%	1%	1%
Sports or leisure											
RISKTAK4 (n=277)	7%	7%	10%	15%	11%	15%	8%	13%	5%	3%	5%
Career decisions											
RISKTAK5 (n=264)	7%	7%	9%	14%	8%	14%	14%	11%	8%	3%	4%
Health choices											
RISKTAK6 (n=278)	11%	17%	16%	17%	9%	13%	5%	6%	3%	1%	2%
Losing your home to wildfire											
RISKTAK7 (n=277)	17%	13%	17%	17%	10%	15%	4%	3%	1%	1%	1%

AGE (n=281)

7.3 What is your age? *(Fill in the blank)*

AVERAGE = 66

GENDER (n=276)

7.4 Are you? *(Circle one number)*

70% Male

30% Female

EDUC (n=273)

7.5 What is the highest grade or year of school you completed? (*Circle one number*)

- 1% Less than high school
- 4% High school graduate
- 15% Some college or technical school
- 4% Technical or trade school
- 30% College graduate
- 12% Some graduate work
- 34% Advanced Degree (M.D., M.A., M.S., Ph.D., etc.)

EMPLOY (n=279)

7.6 Which of the following best describes your current employment situation? (*Circle one number*)

- 30% Employed full time (including self-employed)
- 10% Employed part time (including self-employed)
- 2% Unemployed or do not work outside of the home
- 58% Retired

INCOME (n=248)

7.7 Which of the following categories describes your annual household income? (*Circle one number*)

- 2% Less than \$15,000
- 3% \$15,000 - \$24,999
- 5% \$25,000 – \$34,999
- 11% \$35,000 - \$49,999
- 20% \$50,000 - \$74,999
- 18% \$75,000 - \$99,999
- 21% \$100,000 - \$149,999
- 9% \$150,000 - \$199,999
- 11% More than \$200,000

Thank you for your help. Please use the space below to write any additional comments.